

Appl. No. 10/032,781

AMENDMENT AND SUMMARY OF PERSONAL INTERVIEW

Docket No. KFHI-101

REMARKS

Claims 1-26 and 38-47 are pending. By this Amendment, non-elected Claims 27-36 and Claim 37 are canceled, without prejudice or disclaimer, Claim 23 has been amended, and new Claims 38-47 are added. Support for the claim amendments and the new claims is found in the specification at, *inter alia*, paragraphs [0009]-[0010], [0018]-[0019], [0022], [0023], [0030], [0033], [0049]-[0050], and in the original claims. The specification has been amended at paragraphs [0023] and [0024] to correct inadvertent typographical and grammatical errors. No new matter is added by this Amendment.

Applicants thank Examiner Drew Becker for the courtesies extended to their representative at the December 8, 2004 personal interview. Applicants' separate record of the interview is set forth in the foregoing amendments and the following remarks. The proposed claims discussed at the interview are substantially identical to new Claims 38-44, except for the transferring steps of claim 38 and recitation of the turbulent conditions in claim 38, and the addition of new Claim 39.

I. FIRST REJECTION UNDER 35 U.S.C. 103(a)

Claims 1-7, 9-12, 14-26, and 37 were rejected under 35 U.S.C. 103(a) over Alikonis (Candy Technology) in view of EP 0 753 715 A2. This rejection is respectfully traversed.

Alikonis discloses a continuous process for making caramels and chewy candies utilizing mechanically mixed cookers. According to the process disclosed on page 57, a precooker meters liquid sugar or a sugar-water mixture into a steam-jacketed kettle. Corn syrup is then introduced into the kettle and the resulting sweetener blend is fed to a vat. Milk is pumped and metered through a preheater, blended with melted fat, and fed into a

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tank with the sweetener blend to form a final blend which is then cooked in a cooker such as a thin film type cooker or concentrator.

In describing the continuous process, Alikonis does not disclose to what temperature the precooker or steam jacketed kettle heat the liquid sugar or sugar-water mixture. Additionally, Alikonis does not disclose the mixing of the dairy components with a boiling sugar solution. Similarly, Alikonis, at page 57 does not disclose the temperature at which the final blend is cooked in the thin film type cooker or concentrator. The Examiner then chooses the Alikonis description at page 152 for the batch cooking of cast caramel to establish cooking temperatures for use in the continuous process of page 57. In the batch process for producing cast caramel, the corn syrup, sugar, sweetened condensed whole milk, vegetable fat and salt are all kettle cooked to a temperature of 235°F. Then butter is introduced and cooking is continued to 237°F.

Alikonis does not disclose using any heat exchangers as recited in Claim 1 (i.e., plate and frame heat exchanger, a shell and tube heat exchanger, or a coil heat exchanger). Further, Alikonis does not teach or suggest: (1) heating an aqueous sugar composition in a first plate and frame heat exchanger; (2) admixing a dairy component with the boiling, aqueous sugar composition after the composition exits the first plate and frame heat exchanger to form a dairy-based mass; and (3) heating the dairy-based mass in a second plate and frame heat exchanger, as recited in Claim 23.

The Examiner maintains that it would have been obvious to one of ordinary skill in the art to incorporate the plate heat exchangers of EP 753715A2 into the method of Alikonis. It is not seen why one ordinarily skilled in the art faced with the disclosure of Alikonis would seek the teaching of EP '715 and then replace the pre-cooker and steam jacketed kettle of Alikonis or the thin film type cooker or concentrator of Alikonis with the plate-like heat exchanger of EP '715 so as to obtain Applicants' claimed invention.

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Even if the references were properly combinable, which they are not, Applicants' claimed invention would not be obtained nor rendered obvious.

EP '715 does not overcome the deficiencies of Alikonis. EP '715 discloses the use of a plate-like heat exchanger for heating or cooking mixed solutions containing sugar. The plate-like heat exchanger of EP '715 gently heats a product containing heat-sensitive additives, such as milk, by having three separately controlled and heated partial chambers 21, 22, 23 (English translation at page 2, line 4 and line 20; page 5, lines 29-30). EP '715 is not concerned with the production of caramel, let alone cast caramel where high temperatures are employed to develop color and flavor by a Maillard reaction between a protein and a reducing sugar.

Contrary to the assertion in the Office Action, there is no teaching or suggestion to substitute the precooker (or preheater) of Alikonis with the plate-like heat exchanger of EP '715. The plate heat exchanger of EP '715, by itself, can gently heat a sugar solution, with or without milk, from a low temperature to a higher temperature. EP '715 does not teach or suggest heating of an aqueous sugar solution to at least its boiling point or heating a dairy-based mass above its initial boiling point. Heating to a vigorous, agitated boil so as to prevent precipitation of protein and fouling of the heat exchanger surfaces is simply not taught or suggested by EP '715. Even if Alikonis at page 152 teaches batchwise heating to 235°F and 237°F (which would be boiling temperatures), to the contrary: EP '715 teaches gentle heating and not vigorous or turbulent heating conditions for use in a plate-like heat exchanger.

There is also no teaching or suggestion of replacing the steam-jacketed kettle of Alikonis with the plate-like heat exchanger of EP '715. The steam-jacketed kettle of Alikonis at page 57 has two ingredient inputs (one for the sugar or sugar-water mix and another for corn syrup). Also, in the cast caramel batch process at page 152 of Alikonis,

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the milk is separately input for heating with the sugars. In contrast, the plate-like heat exchanger of EP '715 only has one product inlet tube 39 and not multiple inlets as would be needed in the proposed modification of the Alikonis apparatus and process.

Moreover, as discussed at the interview, neither Alikonis nor EP '715 recognizes the problems associated with cooking candy masses containing dairy components in a plate and frame heat exchanger over a long period of time (e.g., burning, denaturing, or precipitating of protein and fouling of heat transfer surfaces). The present invention solves these problems by injecting a dairy component into a boiling, aqueous sugar composition to create turbulence in the boiling, aqueous sugar composition. The cooking of the resulting dairy-based mass under turbulent conditions prevents precipitation and burning of the protein in the dairy component, thereby preventing fouling in the cooking apparatus. In contrast, EP '715 seeks to gently heat a sugar solution containing a heat sensitive component such as milk through different heated stages or chambers of a single plate-like heat exchanger. The mode of operation of the plate-like heat exchanger of EP '715 is completely different from the method of the present invention.

Thus, even if Alikonis and EP '715 were properly combinable, which they are not, one of ordinary skill in the art would not have been led to heating an aqueous sugar composition in a first heat exchanger to obtain a boiling sugar composition; admixing a protein-containing dairy component with the boiling sugar composition to obtain a dairy-based mass; and heating a dairy-based mass in a second heat exchanger, wherein the heat exchanger is a plate and frame heat exchanger, a shell and tube heat exchanger, or a coil heat exchanger, as recited in Claim 1. Further, the combination of Alikonis and EP '715 does not teach or suggest: (1) heating an aqueous sugar composition in a first plate and frame heat exchanger, and (2) heating a dairy-based mass in a second plate and frame heat exchanger, as recited in Claim 23. Any attempt to substitute two plate and frame

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heat exchangers in the process of Alikonis is impermissible hindsight reconstruction using the claimed method as a template.

Also, as to Claim 3 and new Claims 42 and 46-47, neither Alikonis nor EP '715 teach or suggest flashing a dairy-based mass prior to cooking. Alikonis does not teach boiling temperatures in the agitator equipped tank where the fat-milk and sweetener blends are combined before cooking in the film type cooker or concentrator.

Finally, as discussed at the interview, neither Alikonis nor EP '715 teach or suggest transporting a boiling sugar composition from a first heat exchanger via a mixing pipe having an injection port; injecting a dairy component into the injection port to obtain a dairy-based mass; and transporting the dairy-based mass to a second heat exchanger via the mixing pipe, as recited in new Claim 42. Accordingly, it would not have been obvious for one of ordinary skill in the art to practice the claimed methods for the continuous production of a dairy-based confection in view of the combined teachings of Alikonis and EP '715. Reconsideration and withdrawal of the rejection are respectfully requested.

II. SECOND REJECTION UNDER 35 U.S.C. 103(a)

Claims 8 and 13 were rejected under 35 U.S.C. 103(a) over Alikonis in view of EP '715 in view of Kolar (U.S. Patent No. 3,677,771). This rejection is respectfully traversed.

As discussed, Alikonis and EP '715 do not teach or suggest heating an aqueous sugar composition in a first heat exchanger to obtain a boiling sugar composition; admixing a protein-containing dairy component with a boiling sugar composition to obtain a dairy-based mass; and heating a dairy-based mass in a second heat exchanger,

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wherein the first and second heat exchanger are a plate and frame heat exchanger, a shell and tube heat exchanger, or a coil heat exchanger, as recited in Claim 1.

Kolar does not overcome the deficiencies of Alikonis and EP '715. Kolar discloses the production of a caramel-type confectionary product from a reconstitutable dried condensed milk product made by mixing concentrated fluid dairy whey with a proteinaceous source; adding a partially hydrogenated fat to the mixture; drying the condensed milk provided; and incorporating a sequestering agent to sequester any calcium ions present in the milk product (Abstract). Kolar discloses vacuum evaporation of fluid sweet dairy whey (col. 7, line 75 - col. 8, line 2). The concentrated whey is then mixed with casein and vegetable oil and processed via homogenization and spray drying to form a powdered product.

Kolar does not teach or suggest increasing the solids content of a cooked dairy-based mass by the application of vacuum, as recited in Claim 8. Applicants thank Examiner Becker for clarifying his statement that "Alikonis already included flashing" is directed to evaporation. Nevertheless, there is no reason given in the Office Action why it would have been obvious to incorporate the vacuum flashing of Kolar into the method of Alikonis. Kolar discloses vacuum flashing of a dairy component (i.e., whey), not a cooked dairy-based mass.

Further, like Alikonis and EP '715, Kolar does not teach or suggest injecting a dairy component between first and second heat exchangers as claimed. Thus, it would not have been obvious for one of ordinary skill in the art to practice the claimed methods for the continuous production of a dairy-based confection in view of the combined teachings of Alikonis, EP '715, and Kolar. Reconsideration and withdrawal of the rejection are respectfully requested.

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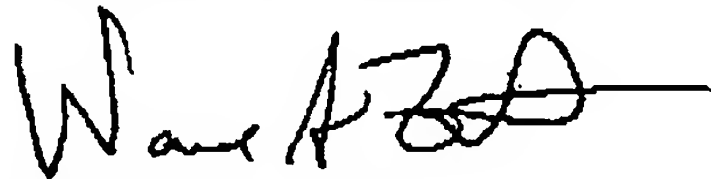
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III. CONCLUSION

In light of the foregoing remarks, this application is in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application.

Any additional fees should be charged to, or any overpayment in fees should be credited to, Deposit Account No. 501032 (Docket #KFHI-101).

Respectfully submitted,



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